Chapter 2
Conclusions and Recommendations

Conclusions

1. Wet abrasive blasting effectively removed the lead-based paint from both exterior wood siding and brick masonry with minimal or no damage to the underlying substrates (only light sanding of the wood was required prior to painting or tuck pointing of the mortar joints). The residual lead levels were significantly below the HUD Guideline of 1 mg/cm^2 ($p<0.0001$). The average paint removal rates were 76.4 and 119.8 ft^2/hr on wood and brick, respectively.

2. The lead concentrations determined by ICP-AES analysis and determined by XRF measurements before paint removal on wood were not significantly different ($p=0.1055$); however, these determinations before paint removal on brick were significantly different ($p=0.0001$). The lead concentrations determined by ICP-AES analysis and determined by XRF measurements after paint removal on wood were significantly different ($p=0.0331$); however, these determinations after paint removal on brick were not significantly different ($p=0.5504$).

3. The wet abrasive slurry-mixture appears to reduce the fugitive emissions of lead-containing particulate, which serves to enhance the level of environmental protection as well as worker health and safety. The mean area air levels of lead-containing particulate generated during paint removal were significantly below the OSHA PEL of 50 µg/m^3 ($p<0.001$), whereas the mean personal breathing zone levels of lead were approximately three times higher than the PEL. The personal breathing zone levels of lead did not vary significantly with substrate ($p=0.6396$); the area samples showed higher levels of lead during removal of paint from brick than for paint removal from wood ($p=0.0463$).

4. Neither of the two stabilization technologies (Blastox® and PreTox 2000) consistently stabilized the abrasive media lead-based paint waste to reduce the leachable lead content. The 80 percent upper confidence interval for the mean leachable lead concentration in the debris consistently exceeded the RCRA regulatory threshold (5 mg/L). Failure of the technologies to stabilize the lead most likely was due to an inadequate chemical stabilizer-abrasive blend ratio or

insufficient application mil thickness of the pre-paint removal coating treatment in the case of Blastox® and PreTox 2000, respectively.

Recommendations

1. Although wet abrasive blasting reduces fugitive emissions of lead-containing particulate generated during removal of paint film from exterior wood or brick masonry, it should be conducted in at least a Class 4 Containment System as specified in SSPC Guide 6, "*Guide for Containing Debris Generated During Paint Removal Operations.*"[3] Air monitoring should be conducted at the perimeter work area to determine the extent that lead-containing particulate are escaping from the work area.

2. To maximize the performance of these technologies the user should understand the various factors that may affect the effectiveness of the product to reduce the leachable lead content of the debris. Included are paint film lead content, paint film thickness, paint film condition, type of substrate (e.g., wood, brick, metal), variant particle size, and other potentially significant factors.

   PreTox 2000–The user of this technology should follow the application optimization procedure specified in the technical guidance provided by the manufacturer. This will ensure that the optimum mil thickness application rate of PreTox 2000 is applied to the lead-based paint coating to be abated.

   Blastox®–Subsequent to completing this study, the manufacturer of Blastox® revised their technical guidance regarding the proper blend ratios of abrasive to chemical-stabilizer. The user of this technology should verify that the blend ratio provided by the material supplier is consistent with the recommended blend ratio for a given lead-based paint coating to be abated.

3. Due to the inability of these technologies to consistently reduce the leachable lead content in the abrasive media paint debris during this demonstration, all debris should be tested by TCLP prior to disposal. The sampling strategy should be consistent with Chapter 9 "*Sampling Plan*" of SW-846 "*Test Methods of Environmental Testing of Solid Wastes.*"[8]